WHAT IS CLAIMED IS:

A method of producing a plastic molding, comprising the steps of:

heating [preparing] a mold assembly including at least one transfer surface, at least one slide cavity piece providing a surface other than the transfer surface, and at least one vent hole for supplying a compressed gas to a prescribed mold-temperature lower than a softening point of a resin to be molded, the slide cavity piece and the at least one transfer surface being arranged to form at least one cavity;

heating the resin to a prescribed resin-temperature above the softening point thereof, to produce a molten resin;

injecting the molten resin into the cavity so that the cavity is filled with the molten resin; applying a resin-pressure to the molten resin so that the molten resin is brought into tight contact with the at least one transfer surface;

cooling the resin to a temperature lower than a softening point thereof so that the molten resin is solidified;

sliding the slide cavity piece at a prescribed time in a direction away from the solidified resin by supplying compressed gas into the cavity via the vent hole so that a gap is forcibly formed between the resin and the slide cavity piece; and

opening the mold assembly so that the plastic molding may be taken out from the mold assembly.

- 2. The method of producing a plastic molding according to claim 1, wherein the resin-pressure at the [timing] time when the slide cavity piece is slid is equal to or less than 60 Mpa.
- 3. The method according to claim 1, wherein the compressed gas has a gas-pressure in a range of from 0.1 to 2 MPa.

A mold assembly for producing a plastic molding, the mold assembly including a cavity having a prescribed volume, at least one transfer surface, and at least one non-transfer surface other than the transfer surface, the mold assembly comprising:

a slide cavity piece providing the non-transfer surface; and

- a vent hole for supplying a compressed gas into the cavity.
- 5. The mold assembly according to claim 4 wherein the vent hole is configured to supply a gas having a gas pressure equal to or less than 60 MPa.
- 6. The mold assembly according to claim 4, wherein the vent hole is configured to supply a gas having a gas pressure from 0.1 to 2 MPa.
- 7. The mold assembly according to claim 4, wherein the vent hole is disposed in the slide cavity piece.
- 8. The mold assembly according to claim 4, wherein the vent hole is disposed between the slide cavity piece and a portion of the mold assembly adjacent to the slide cavity piece.
- 9. The mold assembly according to claim 4 further comprising a pressure control device [for pressing] positioned to press the slide cavity piece.
- 10. The mold assembly according to claim 9, wherein the pressure control device further includes a driving mechanism driving the slide cavity piece.
- 11. The mold assembly according to claim 4, further comprising a pressure detector for detecting the resin-pressure in the cavity and a sliding mechanism for sliding the slide cavity piece, wherein the sliding mechanism is positioned to drive the slide cavity piece on the basis of information from the pressure detector.
- 12. The mold assembly according to claim 5, further comprising a pressure detector for detecting the resin-pressure in the cavity and a sliding mechanism positioned to drive the slide cavity piece, wherein the sliding mechanism drives the slide cavity piece on the basis of

AI



information from the pressure detector.

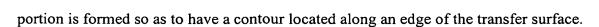
- 13. The mold assembly according to claim 9, further comprising a pressure detector for detecting the resin pressure in the cavity and a sliding mechanism positioned to drive the slide cavity piece, wherein the sliding mechanism drives the slide cavity piece on the basis of information from the pressure detector.
- 14. The mold assembly according to claim 10, further comprising a pressure detector for detecting the resin-pressure in the cavity and a sliding mechanism positioned to drive the slide cavity piece, wherein the sliding mechanism drives the slide cavity piece on the basis of information from the pressure detector.
- 15. The mold assembly according to claim 4, wherein a surface of the slide cavity piece that contacts the resin is processed with a surface treatment using a low adhesive material which has a low adhesive force with the resin.
- 16. The mold assembly according to claim 4, wherein a step is formed in a joint surface between the transfer surface and the slide cavity piece.

17 A plastic molding comprising:

at least one transfer surface; and

at least one imperfect transfer portion having a concave or convex shape, wherein the imperfect transfer portion is located in at least one prescribed portion of the plastic molding so as to release a residual resin-pressure and an inward deformation of the plastic molding.

- 18. The plastic molding according to claim 17, wherein the imperfect transfer portion is formed in a portion other than the transfer surface.
- 19. The plastic molding according to claim 18, wherein the imperfect transfer portion is formed in an extension-surface of the transfer surface.
 - 20. The plastic molding according to claim 18, wherein the imperfect transfer



21. The plastic molding according to claim 20, further comprising a second transfer surface, wherein the imperfect transfer portion is formed in a portion between the transfer surface and the second transfer surface so as to have a contour located along both edges of the transfer surface and the second transfer surface.

- 22. The plastic molding according to claim 17 wherein the imperfect transfer portion is formed in a thin portion of the plastic molding.
- 23. The plastic molding according to claim 17 further comprising a second imperfect transfer portion, wherein both of the imperfect transfer portion and the second imperfect transfer portion are formed in a same surface other than the transfer surface.
- 24. The plastic molding according to claim 17, wherein the plastic molding is an optical element and wherein the transfer surface is an optical surface.

An injection molding method of producing a plastic molding having at least one transfer surface and at least one imperfect transfer portion, comprising a step of injecting [wherein] a resin [is injected] into a cavity of a mold assembly.

26. A method of producing a plastic molding having a at least one transfer surface and at least one imperfect transfer portion, comprising the steps of:

injecting a molten resin into a cavity of a mold assembly, the mold assembly including at least one transfer surface in the cavity;

applying a resin-pressure to the molten resin in the cavity so that the transfer surface is transferred to the molten resin, and then;

generating a local shrinkage for separation from the cavity so that a concave imperfect transfer portion is formed on the resin.

27. A method of producing a plastic molding having a at least one transfer surface

and at least one imperfect transfer portion, comprising the steps of:

injecting a molten resin into a cavity of a mold assembly for providing a cavity, the mold assembly including at least one transfer surface in the cavity;

applying a resin-pressure to the molten resin so that the transfer surface is transferred to the molten resin, and then;

generating a local release of the resin-pressure so that a convex imperfect transfer portion is formed on the resin.

- 28. The mold assembly according to claim 9, wherein the driving mechanism comprises an oil pressure cylinder.
- 29. The mold assembly according to claim 9 wherein the driving mechanism comprises an electric motor.